

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-8 (Canceled).

Claim 9 (Currently Amended): A method for synthesis of a routing with a design tool stored in a memory on a computer, comprising:

a) obtaining parameters of:

different configurations of service variants and calculator variants and a percentage occurrence of the configurations, a sum of proportions of the configurations being considered equal to one,

cost characteristics of components stored and weighted as a function of their respective installation proportions, and

partial or complete mapping of the service variants onto the calculator variants;

b) identifying valid routings;

c) evaluating, via a processor of the computer, routing cost of the valid routings for each configuration;

d) determining, via the processor of the computer, the valid routing that minimizes a mean, weighted by the installation proportions of each configuration, of the routing costs for each configuration;

e) displaying, in a first view on a display screen of the computer, a plurality of zones into which the service variants and the calculator variants are grouped, wherein the first view includes a guide to indicate how the plurality of zones are situated relative to one another, the

plurality of zones schematically represent a product for which the routing is synthesized, and the routings between the zones are not shown in the first view; and

f) displaying, in a second view on the display screen, the valid routing that minimizes the mean of a single zone of the plurality of zones.

Claim 10 (Previously Presented): A method according to claim 9, wherein a quality characteristic expressed as breakdowns per million is considered to compare respective measures of two candidate architectures for a product plan.

Claim 11 (Previously Presented): A method according to claim 10, wherein one of the quality characteristics considered is weight.

Claim 12 (Previously Presented): A method according to claim 9, further comprising automatically calculating a cost of assembly of electrical and electronic architecture as a function of a cost of assembly of a strand on a zone of the plurality of zones, of a cost of assembly of a connector on a zone boundary or on a zone of the plurality of zones, of a cost of assembly of a calculator on a zone of the plurality of zones, of a cost of assembly of a sensor or actuator on a zone of the plurality of zones, and of a cost of connection of a connector between zones of the plurality of zones or in a zone of the plurality of zones.

Claim 13 (Previously Presented): A method according to claim 9, further comprising synthesizing optimal routing for all configurations, by repeating operations a) to d), criterion for minimization being a cost composed of:

an estimated recurrent cost of parts,

an estimate of quality cost in anticipation of the cost of repair per zone of the plurality of zones, this quality cost being increased by a constant cost depending on the zone and its ease of access,

an estimate of the cost of weight, taking into account mechanical wear and consumption related to an increase of the weight of the vehicle, and/or an estimate of the cost of assembly.

Claim 14 (Currently Amended): A method according to claim 9, applied to wherein the synthesis of the routing for the product is an electrical architecture of a newly created product or to synthesis of an electrical architecture modified relative to a previous architecture of the product.

Claim 15 (Currently Amended): A computer readable storage medium including computer executable instructions to synthesize a routing, wherein the instructions, when executed by a processor, cause the processor to perform a method, comprising:

a) obtaining parameters of:

different configurations of service variants and calculator variants and a percentage occurrence of the configurations, a sum of proportions of the configurations being considered equal to one,

cost characteristics of components stored and weighted as a function of their respective installation proportions, and

partial or complete mapping of the service variants onto the calculator variants;

b) identifying valid routings;

c) evaluating routing cost of the valid routings for each configuration;

- d) determining the valid routing that minimizes a mean, weighted by the installation proportions of each configuration, of the routing costs for each configuration;
- e) displaying, in a first view on a display, a plurality of zones into which the service variants and the calculator variants are grouped, wherein the first view includes a guide to indicate how the plurality of zones are situated relative to one another, the plurality of zones schematically represent a product for which the routing is synthesized, and the routings between the zones are not shown in the first view; and
- f) displaying, in a second view on the display, the valid routing that minimizes the mean of a single zone of the plurality of zones.

Claim 16 (Currently Amended): A device for synthesis of a routing, comprising:

- a) means for obtaining parameters of:
 - different configurations of service variants and calculator variants and a percentage occurrence of the configurations, a sum of proportions of the configurations being considered equal to one,
 - cost characteristics of components stored and weighted as a function of their respective installation proportions, and
 - partial or complete mapping of the service variants onto the calculator variants;
- b) means for identifying valid routings;
- c) means for evaluating routing cost of the valid routings for each configuration;
- d) means for determining the valid routing that minimizes a mean, weighted by the installation proportions of each configuration, of the routing costs for each configuration; and
- e) a display configured to display, in a first view, a plurality of zones into which the service variants and the calculator variants are grouped, wherein the first view includes a

guide to indicate how the plurality of zones are situated relative to one another, the plurality of zones schematically represent a product for which the routing is synthesized, and the routings between the zones are not shown in the first view, and, in a second view, the valid routing that minimizes the mean of a single zone of the plurality of zones.

Claim 17 (Canceled).

Claim 18 (Currently Amended): A method according to claim 9, wherein the displaying in the second view includes prohibited subzones through which represent a portion of the product through which wires cannot be passed such that the valid routings do not pass through the prohibited subzones.

Claim 19 (Previously Presented): A method according to claim 9, wherein the displaying in the first view includes a first compass as the guide, and the displaying in the second view includes a second compass to indicate how to orient the single zone.

Claim 20 (Canceled).

Claim 21 (Currently Amended): A computer readable storage medium according to claim 15, wherein the displaying in the second view includes prohibited subzones through which represent a portion of the product through which wires cannot be passed such that the valid routings do not pass through the prohibited subzones.

Claim 22 (Previously Presented): A computer readable storage medium according to claim 15, wherein

the displaying in the first view includes a first compass as the guide, and
the displaying in the second view includes a second compass to indicate how to orient the single zone.

Claim 23 (Canceled).

Claim 24 (Currently Amended): A device according to claim 16, wherein, in the second view, the display includes prohibited subzones ~~through which represent a portion of the product through which wires cannot be passed such that the valid routings do not pass through the prohibited subzones.~~

Claim 25 (Previously Presented): A device according to claim 16, wherein in the first view, the display includes a first compass as the guide, and in the second view, the display includes a second compass to indicate how to orient the single zone.

Claim 26 (New): A method according to claim 9, wherein the obtaining different parameters includes displaying on the display screen a user interface for the design tool including a hierarchical list including the service variants from which a user can select a particular service variant from the service variants and a graphical zone in which a user can enter a desired configuration of the particular service variant.

Claim 27 (New): A computer readable storage medium according to claim 15, wherein the obtaining different parameters includes displaying a user interface for the design tool including a hierarchical list including the service variants from which a user can select a particular service variant from the service variants and a graphical zone in which a user can enter a desired configuration of the particular service variant.

Claim 28 (New): A device according to claim 16, wherein the means for obtaining includes means for displaying a user interface including a hierarchical list including the service variants from which a user can select a particular service variant from the service variants and a graphical zone in which a user can enter a desired configuration of the particular service variant.